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ABSTRACT

Existing research on vocational education and training (VET) for entry-level employment in Australia was reviewed. According to the review, research on entry-level VET has enhanced knowledge related to the following: competence requiring knowledge and understanding as well as performance; graded standards-based assessment; problems of policy implementation; and unforeseen consequences or practical limitations of existing policies. The following areas were identified as requiring strategic policy-relevant research: reasons for the decline in apparent retention to year 12 since 1993; reasons for the decline in provision of apprenticeship opportunities and in the educational profile of students enrolling in apprenticeship programs; relationship between employers' and trainees' participation in work-based training arrangements and incentives (including training wages and subsidies); learning processes associated with achieving competence; further work on graded standards-based assessment; and factors affecting transfer of knowledge and skill. The following types of data were deemed necessary in the interests of more soundly based policymaking: regularly collected (preferably annually) data on the employment, educational, and training activities of young people in the first 5 years out from compulsory schooling; data on private providers of entry-level training; and equity data on all groups of disadvantaged participants in entry-level training. (Contains 122 references.) (MN)

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Entry-level training

David Lundberg

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David Lundberg

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Executive summary

Major policy-relevant research findings

SPECIFICY MAJOR POLICY-RELEVANT research findings on entry-level training is rather like identifying beauty. There are many worthwhile projects, but the essential reality is that the directions have been determined by assumed policy premises with strong roots in prevailing political or other ideologies but little basis in research. Researchers have tested the arrangements, warned of difficulties and suggested improvements and even queried fundamental premises, but changes of direction have been largely politically determined. Within these constraints, research has enhanced knowledge in relation to:

- competence requiring knowledge and understanding as well as performance
- graded standards-based assessment
- problems of policy implementation
- unforeseen consequences or practical limitations of existing policies.

Suggested gaps requiring strategic policy-relevant research

Some notable gaps in knowledge related to entry-level training, which suggest a need for strategic policy-relevant research, include:

- reasons for the decline in apparent retention to Year 12 since 1993
- reasons for the decline in provision of apprenticeship opportunities, and in the educational profile of students taking those that are available, in comparison with the growth in traineeships
- the relationship between employers' and trainees' participation in work-based training arrangements and incentives, including training wages and subsidies
- the learning processes associated with achieving competence

- further work on graded standards-based assessment
- factors affecting transfer of knowledge and skill

Statistical collections

Some shortcomings in existing data sets should be rectified in the interests of more soundly based policymaking, including:

- surveys at regular intervals of the employment, educational and training activities of young people in the first five years out from compulsory schooling (to build towards annual collections)
- data on private providers of entry-level training
- NATMISS equity data on disadvantaged participants in entry-level training exclude some groups, (for instance, sole-supporting parents)

Context

ENTRY-LEVEL TRAINING is directed to provide appropriate training for people who are entering the workforce at a variety of occupational levels, but the term is usually understood to refer to training for occupations up to Australian Standards Framework (ASF) level 4, or the equivalent of advanced trades qualifications. For many of these occupational categories, entry-level training commonly involves substantial components of work-based training as well as formal institutional training (often organised in apprenticeships or traineeships). Entry-level training above the ASF level 4 classification usually involves greater emphasis on formal education and training at TAFE or university and less reliance on work-based training.

Technical and Further Education (TAFE) resulted from a reform of technical and vocational education and training in the 1970s (Kangan 1975). TAFE courses, apprenticeships and traineeships have been the main forms of entry-level training in Australia (Goozee 1993). Major reforms were initiated in 1992 towards a new Australian Vocational Training System (AVTS), modified since 1996 by the proposed New Apprenticeship System (NAS), which includes apprentices and trainees. Concurrently with these changes, more entry-level vocational education and training is being provided in post-compulsory schooling and by private providers.

Post-compulsory education and training

Entry-level training needs to be seen in the context of post-compulsory education and training. Until the 1980s, Australia had relatively low levels of retention to Year 12 and low rates of participation in other forms of post-compulsory education and training except for apprenticeships in manufacturing industry which were at internationally comparable levels (Finn 1991). The Australian traineeship system was established to rectify a severe gender imbalance, restricted occupational coverage and inflexibility in the apprenticeship system (Kirby 1985; DEET 1991c). Before the Australian Traineeship System was introduced, Australia was second lowest (ahead of Greece) among OECD countries in the proportion of its young people who

had access to vocational education and training leading to recognised qualifications (Sweet 1995).

Between 1983 and 1993 there was a significant improvement in apparent retention to Year 12 in Australian schools which led to significant increases in demand for places in tertiary education, particularly in universities. In 1991, the Finn committee recommended three targets for higher levels of participation by young Australians in post-compulsory education, summarised as '95 per cent of 19-year-olds should have completed Year 12 or an initial post-school qualification or be participating in education and training' by 2001. These targets represented a significantly higher level of participation in vocational education and training, particularly in structured entry-level training (Finn 1991).

Data on participation in the labour market and education or training during the first five years after compulsory schooling were developed for 1988–89 for the Finn report. The Australian Youth Survey and the Youth in Transition databases provide useful insights into employment, education and training pathways (Long & Robinson 1995). Some work is already beginning in this area, but development of survey data sets for the age cohort at fixed intervals, building towards annual collections, might permit some substantial improvements in policy-relevant information.

Since 1993, there has been a steady decline in apparent retention to Year 12, which has made attainment of the Finn committee's participation targets more difficult to achieve by 2001. The reasons for this change in participation rates have not been reliably established by systematic research. Among other measures, attention may need to be directed to measures to assist students' transition from compulsory schooling into post-compulsory education and training pathways, like the Western Australian 'WAVE' program (Lloyd 1992).

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The significance of not attaining the Finn targets by 2001, or even the continuing relevance of those targets, may be seen as either economics or faith. DEET prepared a projection study with several alternative scenarios to 2001, to illustrate alternative futures (DEET 1991b; Cullen 1993). There are difficulties in demonstrating the economics of vocational education and training (VET), comparable with those of establishing the benefits of research or technological change (Clare & Johnston 1993). The data on the marginal employment status of people without post-compulsory qualifications is clear,

and that implies a need for individuals to take such targets very seriously. However, when the enterprise perspective is considered, the evidence for the necessity of such participation targets is not strong. International industry 'peer pressure' implies a need to invest in education and training (ESFC 1992, 1993, 1994; OECD 1993; ABS 1994; Stern 1994; cf Green & Steedman 1993), but even recognised skill gaps in competitive situations do not necessarily induce managers to adopt a training policy (Smith 1995). The difficulties of demonstrating the economics of vocational education and training tend to increase motivational challenges in relation to employer and apprentice/ trainee investment in education and training (see below).

In the 1990s, Australia is still second to lowest among OECD countries in terms of vocational education and training opportunities for young Australians. Three quarters of post-compulsory education for students in upper secondary age cohorts is in general education, and participation in apprenticeships is declining, as a proportion of the workforce and in the average previous educational attainments of apprentices compared with similar occupational categories (Sweet 1995).

The imbalance between general and vocational educational opportunities was one of the issues which the Finn committee addressed. It remains a major concern.

Industrial relations, income formation and training

The Finn report supported the development of improved entry-level vocational education and training (Finn 1991), which had been actively explored by federal/State advisory bodies(COSTAC 1990a, 1990b ; DEET 1991a), several major interest groups (ACTU/TDC 1987; CAI 1987, 1991 ; BCA 1990a, 1990b) and others (Beare & Millikan 1988). A proposal for a new competency-based entry-level training system had been developed, in a framework which highlighted the relationships between entry-level training, industrial relations and income formation (Aus. HofRep. 1989, Oct, Nov; DEET 1991a). The process of award restructuring was seen as requiring a new commitment to training (DEET, April 1989, June 1989; Deveson 1990).

Some of the most contentious issues in the reforms of entry-level training have concerned the relationships between entry-level training, industrial relations and income formation. The issues in dispute included whether trainee and apprenticeship wages should be set on an age or competence-related basis. Where competence was accepted, issues of the relationship between competence and experience, that tended to be age-related in practice, became important. The issues of incentives or dis-incentives for employers and trainees or apprentices affecting their propensity to participate in entry-level training schemes were closely bound up with industrial relations. In particular, there was initial widespread confusion about whether or not there was, or was likely to become, a relationship between market rates for particular occupations and the competency levels required in those occupations, with reference to the Australian Standards Framework. Controversy on this point considerably confused the initial processes of introducing competency-based entry-level training.

The issue of youth wages, and the relationship such arrangements might have with availability of training places, particularly in work-based entry-level training, has been a point of continuing controversy. Australia's training wages for apprentices and trainees are a substantially higher proportion of the full adult wage rate than is the case in Western European countries, such as Germany, where the rate of participation in such work-based training arrangements is much higher than Australia in non-manufacturing occupations (Sweet 1995).

In the area of the relationships between industrial relations and entry-level training, research has largely been restricted to modelling alternative options, the formulation of which has been driven by industrial relations practitioners and policy-makers (e.g. DEET 1991).

Systemic changes in entry-level training

Starting from the Finn report and previous federal-State policy work (DEET 1991a), the Employment and Skills Formation Council consulted extensively and developed a framework for a new Australian Vocational Certificate Training System (Carmichael, March 1992), the name of which was later simplified to an Australian Vocational Training System (AVTS).

It could be said that the genesis of the Australian Vocational Training System involved more consultations than formal research, but the consultations drew on a substantial breadth of practical experience. This included detailed involvement by Commonwealth State and Territory departments and agencies in the development of the DEET plan that was considered in the consultation process. The ESFC consultations included 280 written submissions and meetings with over 400 organisations in all States and Territories (Carmichael 1992). The ESFC report was then the focus of further consultations with key stakeholders, conducted by an AEC-VEETAC working party. A parliamentary committee endorsed similar principles (Aus. HofRep. December 1991). Aspects of the AVTS system were tested in pilot projects and evaluated (NCVER 1994; O'Sullivan, et al. 1994; Rumsey 1994; cf Courtenay 1996), before and after Commonwealth, State and Territory ministers jointly agreed to proceed with the implementation of the AVTS program from January 1995 to January 1997.

The AVTS scheme envisaged the introduction of a comprehensive program of competency-based entry-level training for virtually all people who did not choose to go to university or to take higher level technician training (ESFC 1993). Delivery would be by local networks, linking schools, TAFE, industry, and private providers. The intention was to provide a system which could realise the Finn targets for participation by 2001. Key competencies were to be developed in all of the pathways, and each pathway in the system was to articulate fully with the others.

Group training companies were accorded a significant role as brokers in the AVTS (Carmichael 1992). This was confirmed in the *Working Nation* white paper (Keating 1994) which accorded to the AVTS a key role in the government's response to unemployment. The white paper added two new mechanisms: a national 'industry-driven' body called the Australian Student Traineeship Foundation to assist school-industry networking and a National Employment and Training Taskforce (NETTFORCE) to promote industry involvement in training. A review of the training reform agenda by Allen Consulting (1994a) found substantial industry support for the AVTS, and another by the Australian National Training Authority (ANTA 1994b, pp.24–26) endorsed the AVTS system, suggesting clearer definitions of the roles of key stakeholders in the system.

Equitable access and participation were high priorities of the AVTS (Carmichael, March 1992). The former federal government's use of the AVTS

as part of its response to unemployment reinforced support for the AVTS (Keating 1992, 1994). The relationship between labour market programs and the 'mainstream' vocational education and training provision has always been complex (Bush 1992). ACOSS has contributed to the development of proposals for improved linkages between labour market programs and 'mainstream' vocational education and training (Green, May 1996). The negotiated targets scheme that operated in Victorian TAFE until recently also assisted many people to make this transition. Similar programs could be administered through NATMISS using ANTA reporting arrangements (Lundberg & Cleary 1995), but this may not be consistent with the policy approach of the present federal government.

Progress in the implementation of the AVTS was slow (Allen 1994 a; ANTA 1994b) Closer cross-sectoral co-operation between school and TAFE envisaged in the AVTS involved numerous problems: different federal-State and sectoral funding arrangements for schools and TAFE, industrial relations difficulties associated with teachers on different awards, joint accreditation or recognition of courses, time-tabling of subjects for cross-institutional networking, relations with private providers and the linking of institutional vocational education and training with work-based training (Lundberg 1996). Nevertheless, positive responses have been forthcoming (Curriculum Corporation 1994; Schools Council 1994; Cherednichenko et al. 1995; Longshaw 1996).

A Modern Australian Apprenticeship and Traineeship System (MAATS), since re-named the New Apprenticeship System (NAS), was announced by the coalition parties in their policies for the 1996 federal election (LPA/NPA 1996). The principles of the New Apprenticeship System (covering apprenticeships and traineeships) were endorsed by the ANTA Ministerial Council in May 1996 (Vanstone & Kemp, 24 May 1996). Australian Workplace Agreements, since authorised by changes to industrial relations legislation, are to remove perceived ' barriers in the industrial relations system' that may impede provision of training (Kemp, 2 May 1996).

The New Apprenticeship System will be based on locally negotiated workplace agreements, including training arrangements to which local providers will be expected to respond. NAS will provide incentives for small business, provide a 'top up' allowance for new apprenticeships and traineeships to minimum age-related levels. NAS includes equity provisions related to literacy and numeracy, women, disadvantaged labour market

participants and rural Australia, and quality safeguards. The Australian Student Traineeship Foundation will continue to develop industry-school links, and Group Training companies will be used to promote multiple workplace apprenticeship and traineeship arrangements (Kemp, May, August 1996).

Competencies and entry-level training

COMPETENCY-BASED TRAINING has attracted broad support from federal and State governments as well as from industry where it is seen as a means of improving the quality and relevance of vocational education and training (Dawkins 1987, 1989; DEET, 1991b; Carmichael, March 1992). However, competency-based training has been policy driven change. The Australian Standards Framework levels were defined with negligible research to test their suitability, and national competency standards were usually defined on the basis of industry consultations rather than research about skill acquisition in the relevant occupations. In a similar way, ANTA's implementation strategy for the national training reform agenda, which proposed the revision of the Australian Standards Framework, was based on further consultations with various stakeholders (ANTA 1994a).

A limited research base underpinned much of the initial application of competency-based training by the former National Training Board (NTB 1990, 1992) This approach, and the inadequate research support for it, were extensively criticised by educational researchers (Hager 1992; Jackson 1992; Stevenson 1992; Cornford 1993; Craigie & Collitts 1993; Watson 1993; Harris et al. 1995; Thomson 1995).

Attention has been drawn to the question of whether or not competence can be inferred from evidence about performance. If someone seems to perform specified tasks satisfactorily in the workplace, do we need any further evidence of their competence? At entry level, claims are sometimes made that performance alone is enough. However, the results of preliminary studies addressing this issue suggest that it is both important and a worthwhile direction for further work which can guide the development of learning and assessment strategies (Thomson 1991; Misko 1995).

The issue of understanding is probably important in relation to the 'training paradox'. People are taught what to do at work in circumstances or contexts

and in ways that frequently have little similarity with the contexts and practices they will encounter in the workplace, yet they are expected to 'transfer' what they have learnt. This is a complex issue which deserves focussed attention (Matthews 1995). Provision of work-based training, which is generally an integral component of entry-level training programs (Moy 1996), can reduce the 'training paradox' problem.

The competency-based training program has been the subject of relatively extensive consultations in the course of the Employment and Skill Formation Council's inquiry that led to the AVTS. This led to redefinitions of the first two levels of the Australian Standards Framework (Carmichael 1992).

The application of competency-based training has also attracted substantial concern about national competency standards. A review of the training reform agenda found that process of setting national competency standards was poorly understood (Allen Consulting 1994a) ANTA has included funding of development of vocational competency standards in ANTA resource agreements with industry training advisory bodies (ANTA 1994a). This process is beginning to bear fruit, with more focussed work being done by various ITABs (ANTA, May 1995, May 1996).

One important issue in relation to competency-based training is the balance to be struck between national recognition and enterprise relevance (see below). The former NTB had accepted recognised enterprise standards, but ANTA gave them active encouragement to increase industry 'ownership' of competency standards (ANTA 1994a, 1994b). The Australian Standards and Curriculum Council, serviced by ANTA, has been established to bring standards and curriculum development into a closer relationship .

Studies which illuminate the implementation of competency-based training and assessment indicate that the pace of change is slower and less comprehensive than policy-makers expected (Thomson 1990) and that it has been associated with a great deal of confusion (Owen 1993; Lundberg 1996).

Competency-based assessment and recognition of prior learning (RPL) were also introduced on a strongly policy-driven, rather than research-informed, basis (COSTAC 1990a; McGill 1990; Thomson 1992, 1995; Peddie 1993). Competency-based assessment (CBA) was initially introduced on a 'pass/fail'

basis, without grading, because policy prescriptions considered grading to be necessarily related to normative rather than criterion-referenced assessment. This caused considerable negative reactions, among many TAFE staff and their clients (Lundberg 1996), and graded criterion-referenced or standards-based assessment is generally being introduced instead of general use of 'pass/fail' assessment. Graded criterion-referenced assessment requires substantial further research.

Competency-based assessment also required integration of on- and off-the-job assessment activities in courses involving work-based and institution-based learning, if the benefits of student-driven competency-based education and training were to be fully realised. This has been examined in a number of AVTS pilot projects, but relevant arrangements still pose significant difficulties, because the practice is far from routine.

The coalition will retain competency-based training as the 'common currency' of the NAS program (Kemp, 2 May 1996).

Key competencies

The Finn report argued that 'individual and industry needs are leading to a convergence in general and vocational education', and proposed a set of key competencies which would be developed in young people whatever education and training pathway they follow. This would enhance the adaptability of people who had been developed in these competencies and the framework for the key competencies would offer 'new ways for industry to clarify its expectations of young people and the educational training system' (Finn 1991).

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The Mayer committee was established to explore the concept of the key competencies and to develop operational definitions of an appropriate set of key competencies (Mayer 1992; Werner 1994). Following the Mayer report, further industry consultations (e.g. in 20 workshops in five States and ACT with 320 participants) saw six of the key competencies as relevant (with some clarification); while the seventh (using technology) required more generic definition (Australian Centre for Best Practice, May 1993).

Cultural understanding was recommended as a key competency in the Finn report, discarded in the Mayer report, and vigorously advocated by

Queensland, which co-ordinated a consultancy study. The formulation of the content of the proposed eighth key competency in that study was highly value-prescriptive. The push to have cultural understanding recognised as a key competency foundered in the ANTA Ministerial Council in 1996. While rejection of the proposed formulation is not queried, given the importance of internationalisation of Australia's economy and the multicultural character of Australia's workforce and consumers, this may need further consideration on the basis of a better conception of the competence required.

Given the role envisaged by the Finn committee for the key competencies, it is appropriate that the key competencies seem to have sustained support from the business community (Halliday 1995).

The application of the key competencies was formally integral to the Australian Vocational Training System (Carmichael, March 1992). However, for this policy precept to be fully realised in practice would pose major issues of modification of assessment, to accurately report on attainments, and at least ... sufficient adaptation of curriculum to ensure that cross-curricular development of the key competencies actually takes place on an acceptably reliable basis (Lilly 1995).

Three approaches to operationalising the key competencies have been identified in audits of practice: treating them as 'implicit and in existence' without demonstration, explicit delivery in modules, and explicit and integrated development (Lilly 1994). The key competencies have been mapped on to the curricula in several jurisdictions, often in the 'implicit and in existence' mode of application. The practical effect of this is slight.

Actual testing of attainments against the key competencies and general 'explicit and integrated' application of the key competences would require substantial research on pedagogy and assessment, and curriculum development work. How would the key competencies be developed in young people in the various pathways? How would they be integrated into the curriculum for each pathway? The 'nature of the mental processes that enable trainees to develop the key competencies' probably vary between types of key competency and they are poorly understood at present (Gonczi 1995). Another threshold issue of whether, or under what conditions, key competencies are generic or transferable, is also one that requires further research.

This work is unlikely to be accorded a sufficiently high priority unless policy requiring testing of attainments in relation to integrated key competencies becomes clear, consistent and explicit. Also, there may be substantial issues of comparability (and a requirement for duplication of research) if significant interstate variations emerge in the key competencies.

The opposition of universities to application of the key competencies is well known. There is also substantial resistance to application of the key competencies in schools, particularly in independent secondary schools, although the relevance of the key competencies to vocational preparation is accepted by leading educators across all sectors (Lundberg 1995). The resistance to implementation of the key competencies in universities and at least parts of the school sector has implications for cross-sectoral co-operation in post-compulsory education and training.

The applicability of the key competencies in the Modern Australian Apprenticeship Training System seems to be encompassed within retaining competency-based training (Kemp, May, August 1996).

Awards and funding

National or enterprise focus?

WHEN THE STRATEGIES for implementation of competency-based training were being developed, particularly from April 1989, there was a high degree of conceptual coherence between the national system of awards under the arbitration system and the national approach to competency standards in entry-level training.

That congruence unravelled as the role of the arbitrated award system has been steadily reduced in favour of enterprise bargaining. An enterprise focus in entry-level training would now have a similar degree of conceptual congruence with enterprise bargaining and the emerging Australian workplace agreements.

Against this more local or regional orientation, there is the phenomenon of globalisation, also the issues of portability, national recognition and structures for the recognition of prior learning (RPL). These issues suggest that national systemic arrangements also have a role.

There is necessarily a national consistency–enterprise flexibility trade-off in such matters. This trade-off was evident in the ambiguities in employers' responses to questions about competency-based training and recognition arrangements in a review of the training reform agenda (Allen Consulting 1994a; ANTA 1994a, 1994b). This trade-off has implications for regulatory and incentive frameworks.

A national focus requires more regulation, covering competency standards, accreditation and the National Framework for the Recognition of Training (VEETAC 1991, 1993; VETAB 1993; Ramsey 1993). Regulation tends to increase the need for incentives, reflecting the external benefits of national consistency. Further consideration is being given to replacing the National Framework for the Recognition of Training with a simpler alternative (Kemp, 2 May 1996), which has been considered previously (Ramsey 1993; Allen 1994a; ANTA 1994a, 1994b). The realities of a federal system will make this a difficult task.

An enterprise focus should require less incentives, because it should be closely matched to specific enterprise needs; but the low level of commitment to training by Australian enterprises (ABS 1994; Smith, 1995) suggests that reliance upon enterprises undertaking increased investment in training in their own enlightened self-interest is most unlikely to produce substantially increased training activity. However important skill formation, research and development and technological change may be to the success of enterprises, there has been a persistent pattern of market failure in relation to all three on the part of the responses of Australian firms, who have responded slowly to even major tax incentives to invest in research and development. In the case of enterprise-based training, this pattern of market failure is not limited to Australia (Stern 1994).

Funding

There are a number of options for funding entry-level training: direct or indirect government funding from general revenues, government-regulated funding through levies on employers (including levies with exemptions for firms which demonstrate that they have exceeded specified levels of investment in training), and market-based measures, including individual trainee or employer funding, with or without government subsidies as incentives.

The Training Guarantee scheme was introduced by the Commonwealth Government after an extensive consultation by the Employment and Skills Formation Council. The scheme was consistent with similar initiatives in a number of other countries (including France, Fiji, Singapore, and Korea). Australia's scheme was introduced as a tax rebate scheme for training claimed by employers, and was criticised as a scheme for 'creative accounting'. It was suspended in the 1993 budgetary process, and has effectively terminated. Nothing has replaced the Training Guarantee as a vehicle for addressing the issues of coverage and equity effectively, despite the market failures which had led to its introduction (cf Stern 1994). This policy issue remains, but is largely ignored.

The question to be examined by researchers is whether or not the workplace agreements route will provide a satisfactory alternative system of incentives for employers to make an increasing provision of work-based training

available (against the trends of recent years), so that other incentives like the Training Guarantee remain unnecessary.

The Australian National Training Authority was established to co-ordinate funding of the provision of vocational education and training, including entry-level training, within a 'co-operative federalism' framework, and with an 'arms-length' relationship to TAFE providers. ANTA has developed a framework of national co-ordination of the vocational education and training system, including entry-level training (ANTA 1994c, 1994d, 1995a, 1995c, 1996), giving a somewhat more focussed approach to training reform (Lundberg 1994a, 1996; Allen 1994a; ANTA 1994a, 1994b; Senate 1995; CEDA 1995).

The trend is towards increasing reliance on competitive market delivery of vocational education and training (Allen 1994b; ANTA 1994a, 1994b; Selby-Smith 1995) possibly complemented by new forms of government incentives, such as greater use of tendering or introduction of voucher schemes (Lundberg 1994b; Allen 1994b). There are studies (based on ABS data) of how households are contributing to meet the costs of vocational education and training (McKenzie 1995), of the contributions of employers to the system (Burke 1995) and of the growth of private providers (Anderson 1995). There is scope for considerably more research on private providers and for the development of improved data collections on private providers (ibid).

Structural distortions in government funding arrangements

Structural distortions in government funding arrangements have been a problem in the developing networking of delivery of vocational education and training (as proposed for the AVTS), because States and Territories fund government schools, the Commonwealth contributes significantly to private schools, and Commonwealth, State and Territory funding for vocational education and training is co-ordinated through ANTA (Lundberg 1994a). This problem has been addressed to a considerable extent in the Senate review of ANTA, in which it is proposed that ANTA's funding guidelines be broadened to enable funding of vocational subjects by schools, and that schools contribute to the ANTA State Training Profiles that guide funding outlays (Senate, November 1995).

Equity

THE ISSUE OF equitable access to, and participation in, entry-level training remains one that requires continuing attention (DEET, November 1991; Carmichael, March 1992; Reynolds & Barnett 1993; VEETAC/AEC 1993; Lyall & Hawkins 1993; Morley 1994a, 1994b; Bagshaw 1995). This needs to include rectifying the gaps in the data on some disadvantaged clients in the NATMISS system for which NACVETS is responsible (Lundberg & Cleary 1995). Literacy and numeracy problems that disempower a minority of students also require systemic responses (Watts & Watkins 1991).

Serious attention to the problems of effective access to vocational education and training in rural Australia will need attention to best practice (Cumming 1992; Kelty 1993; NBEET 1994; Lundberg 1995), application of open and flexible learning methods (Carmichael 1992; AEC/VEETAC 1992) and possibly adaptation of institutional models to ones which can provide a more flexible, fair choice to students in regional Australia (Lundberg 1995).

Cyclical impacts on work-based entry-level training

THERE IS EVIDENCE of a recurring pattern of strong cyclical impacts on entry-level training during 'bearish' or recessionary phases of the business cycle, in which there are sharp contractions in provision of opportunities for work-based entry-level training, leading to substantial shortfalls in trained personnel during 'bullish' or improving phases of the business cycle. This market failure would seem to call for a method of providing, on a counter-cyclical basis, increased government funding for work-based entry-level training at the earliest stages of the downward phase of the business cycle.

There is no evidence that this problem has been remedied by policy-makers, although the issue was highlighted in the former Employment and Skill Formation Council's 1992 report on *The Australian Vocational Certificate Training System*. (Carmichael, March 1992). There is a pronounced pattern of a significant increased demand for skilled migrants in the buoyant phase of the cycle, to meet the shortfall in trained personnel which arises from the severe contraction in apprenticeship and traineeship commencements during recessions. The former ESFC proposed that increased incentives for employers to provide apprenticeships and traineeships should be 'triggered' by two successive quarters of less than specified rates of growth (Carmichael 1992).

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In 1997 and 1998, there is emerging a possible pattern of recession in the manufacturing sector, co-existing with overall growth in the economy (based on rural, mining and services growth). Such a pattern, if it develops, would be likely to lead to a substantial contraction in manufacturing apprenticeships, creating further problems for future availability of skilled personnel in the manufacturing sector. If this occurs, policy-makers will, once again, have failed to respond to analyses of the impacts of cyclical reductions in work-based entry-level training on trends in skill formation.

Apart from a focussed policy response, fully effective implementation of measures to secure work-based entry-level training against severe contractions, as recessions 'bite', may require development of improved statistical leading indicators. Improvements on past performance could, however, be made without improved leading indicators.

Findings and directions for future research

Gains

THE CONTRIBUTION RESEARCH has made to informing policy on vocational education and training could (and probably should) have been greater, but many of the key premises of policy have been assumed rather than being put to researchers. This is not, in itself, unusual (Wiltshire 1993). Research has, however, informed several areas, including: competence requiring knowledge and understanding as well as performance, competency-based assessment, including graded standards-based assessment, problems of policy implementation, and unforeseen consequences or limitations of official policies.

Gaps

Strategic policy relevant research in vocational education and training is needed on:

- reasons for the decline in apparent retention to Year 12 since 1993
- reasons for the decline in provision of apprenticeship opportunities, and in the educational profile of students taking those that are available, in comparison with the growth in traineeships
- the relationship between employer and trainee participation in work-based training arrangements and incentives, including training wages and subsidies
- the learning processes associated with achieving competence
- graded standards-based assessment
- factors affecting transfer of knowledge and skill

Research in vocational education and training needs to be supported by a few important changes in vocational education and training statistics collections,

particularly in relation to employment, education and training pathways from compulsory schooling, private providers and some categories of disadvantaged clients.

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This review of research on vocational education and training is one of a series of reports commissioned to guide the development of future national research and evaluation priorities.

Dr David Lundberg has reviewed changes and issues in entry-level training over the past six years. He draws conclusions relevant to policy in the VET sector and identifies areas for further investigation.